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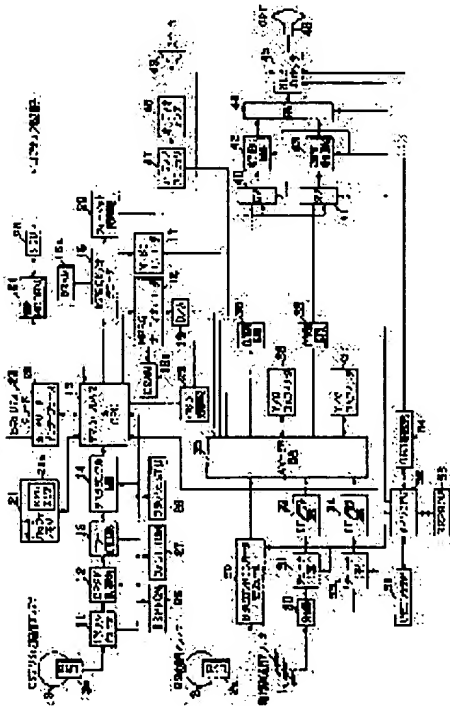
**(54) DEVICE AND METHOD FOR SELECTING AND DISPLAYING PROGRAM•**

(57) Abstract:

**PROBLEM TO BE SOLVED:** To provide a device and a method for selecting and displaying a program with which the program desired by a user can be selected quickly and surely.

**SOLUTION:** When a user operates (depress) a numeric button on a remote controller corresponding to the logo mark of a desired channel, a main CPU 52 reads the data of a last CS channel stored in a EEPROM 26 by controlling a demultiplexer/CPU 15, and controls a CS digital broadcast receiving circuit composed of a digital tuner 11, a QPSK demodulation circuit 12, an MPEG video decoder 16, etc. At the same time, the CPU 52 displays on a CPT 46 the video corresponding to the logo mark of the channel desired

by the user, by controlling the circuit composed of a horizontal compression circuit 42, a two-screen processing circuit 43, an RGB processor 45, etc. •



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## CLAIMS

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[Claim(s)]

[Claim 1] A receiving means to receive the identification information of the channel of the aforementioned program included in the data of a program, the electronic program guide data which offer the various informations for every aforementioned program, and the aforementioned electronic program guide data, While the viewing area which displays the channel selection screen for performing channel selection to a storage means to memorize the indicative data for displaying the channel logo mark corresponding to the aforementioned channel identification information, and the position on a screen is secured A display-control means to display the channel logo mark for every aforementioned program in the aforementioned viewing area, A channel logo mark selection means to choose the program corresponding to the aforementioned channel logo mark by specifying the channel logo mark displayed on the screen, Program selection display characterized by providing an output means to output the program corresponding to the channel logo mark chosen by the aforementioned channel logo mark selection means as a video signal.

[Claim 2] The aforementioned display-control means is program selection display according to claim 1 characterized by displaying two or more aforementioned channel logo marks which are different for every program in the aforementioned viewing area, respectively in the orientation which combined a longitudinal direction, the vertical orientation or the aforementioned longitudinal direction, and the vertical orientation.

[Claim 3] The aforementioned display-control means is equipped with the means which highlights or displays [ cursor ] the specific channel logo mark of the displayed channel logo marks. The aforementioned channel logo mark selection means moves the channel logo mark by which an above highlight or a cursor display is carried out in a longitudinal direction or the vertical orientation. Program selection display according to claim 1 or 2 characterized by specifying the channel logo mark by which the highlight or the cursor display is carried out now, and choosing the program corresponding to the channel logo mark by which specification was carried out [ aforementioned ].

[Claim 4] The aforementioned channel logo mark selection means is program selection display according to claim 1 or 2 characterized by being selectable in a program by one operation.

[Claim 5] A program receiving history storage means to memorize a past program receiving history, and a means to display the channel logo mark of a program corresponding to the program receiving history memorized by the aforementioned program receiving history

storage means in the aforementioned viewing area, Program selection display according to claim 3 or 4 characterized by having a means to change the display position of each aforementioned channel logo mark, with the viewing-and-listening frequency of each program based on the program receiving history memorized by the aforementioned program receiving history storage means.

[Claim 6] Out of the promotion channel display by the aforementioned electronic program guide data constituted by the multi-screen which divided one screen into two or more child screens, and has arranged two or more program picture images on each aforementioned child screen Program selection display according to claim 5 characterized by registering the default channel logo mark displayed in the aforementioned viewing area by choosing a desired program and setting the channel logo mark corresponding to the program as the position in the aforementioned viewing area.

[Claim 7] Program selection display according to claim 5 characterized by registering the default channel logo mark displayed in the aforementioned viewing area by choosing a desired program and setting the logo mark of the channel corresponding to the program as the position in the aforementioned viewing area out of two or more program information displays based on the data of the aforementioned electronic program guide.

[Claim 8] Program selection display according to claim 5 characterized by registering the default channel logo mark displayed in the aforementioned viewing area by preparing two or more registration menus of a channel logo mark classified according to the genre of a program, the charged program, etc., and setting up a desired registration menu out of this registration menu.

[Claim 9] The channel identification information for every aforementioned program contained in the data of a program, the electronic program guide data which offer the various informations for every aforementioned program, and the aforementioned electronic program guide data is received. While the viewing area which displays the channel selection screen for performing channel selection to the position on a screen is secured Two or more channel logo marks which were memorized by the channel logo mark obtained from electronic program guide data for every aforementioned program or the predetermined storage means beforehand, and were read based on the aforementioned channel identification information are displayed in the aforementioned viewing area. The program selection method of presentation characterized by displaying the program corresponding to the aforementioned channel logo mark on an output list as a video signal by specifying the channel logo mark of the request displayed on this viewing area.

[Claim 10] The program selection method of presentation according to claim 9 characterized by displaying further the pay-per-view and the genre which are a complement information on

the program equivalent to the selected channel logo mark, a channel number, a program name, a program start finish time, etc. when either of the aforementioned channel logo marks displayed in the aforementioned viewing area is chosen. [ two or more ]

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the television receiving set which can receive the signal transmitted by digital broadcasting, especially relates to the program selection display and the program selection method of presentation of the program by the aforementioned digital broadcasting.

[0002]

[Description of the Prior Art] Conventionally, although the satellite broadcasting by the analog method is put in practical use, the satellite broadcasting by the digital method is put in practical use by development of a digital technique in recent years. The satellite broadcasting by the digital method transmits the digitized television signal to a predetermined service area through a communication satellite (CS) etc.

[0003] At the satellite broadcasting by the digital method, the television broadcasting of 4-8 channels can be held on one conventional analog television by carrying out a channel split using digital compression technique. An interim report of the broadcast highly advanced vision round-table conference held in April, 1996 is received, and the object which digitizes all television broadcasting, such as ground wave television, satellite broadcasting, and CATV, by A.D. 2010 also in our country is adopted.

[0004] \*\* is possible if very many programs of about 100 channels are broadcast in CS digital-broadcasting system put in practical use now using digital compression technique and bandwidth compression technique.

[0005] In such a system, the technique of choosing and displaying quickly the program for which it wishes out of many programs (viewing and listening) is demanded. A program display according to an electronic program guide (EPG:Electrical Program Guide) system as what fills such a demand conventionally, Multichannel screen program display screen (from the signal of two or more broadcast channels, reduce each picture image of the signal for 16 broadcast channel, and it arranges on each child screen of the multichannel screen which divided one screen into 16, for example) The technique of choosing a program etc. is proposed by choosing a desired program name and a desired child screen out of a child screen display in

what was displayed as a signal of one screen.

[0006] However, in the program selection by program display of the aforementioned electronic program guide system, the program for which it wishes needed to be discovered and chosen out of many channels accompanied by many channelization of a broadcast, and there was a problem that the operation for program selection was very complicated. Moreover, in the program selection by the aforementioned multichannel screen program display, since the aforementioned multichannel screen (child screen) is what is sent from a broadcasting station, when program \*\*\*\*\* which he wishes was not contained in a multichannel screen display, there was a problem (fault) that it was difficult to choose quickly the program for which it wishes.

[0007]

[Problem(s) to be Solved by the Invention] Like the above, there was a problem that the operation for choosing a desired program was very complicated out of many channels accompanied by many channelization of a broadcast by the program selection by the aforementioned conventional electronic program guide system.

[0008] Moreover, since the aforementioned multichannel screen was what is sent from a broadcasting station in the program selection by the conventional multichannel screen program display, a favorite screen could not be put in into a multichannel screen display by itself, but when the program for which it wishes was not contained in a multichannel screen display, there was a problem (fault) that it was difficult to choose quickly the program for which it wishes.

[0009] this invention is made in view of such a problem, and aims at sponsoring the program for which a user wishes for quick and certainly selectable program selection display and the program selection method of presentation.

[0010]

[Means for Solving the Problem] The program selection display by invention according to claim 1 A receiving means to receive the identification information of the channel of the aforementioned program included in the data of a program, the electronic program guide data which offer the various informations for every aforementioned program, and the aforementioned electronic program guide data, While the viewing area which displays the channel selection screen for performing channel selection to a storage means to memorize the indicative data for displaying the channel logo mark corresponding to the aforementioned channel identification information, and the position on a screen is secured A display-control means to display the channel logo mark for every aforementioned program in the aforementioned viewing area, A channel logo mark selection means to choose the program corresponding to the aforementioned channel logo mark by specifying the channel logo mark

displayed on the screen, It is characterized by providing an output means to output the program corresponding to the channel logo mark chosen by the aforementioned channel logo mark selection means as a video signal, and being constituted.

[0011] In program selection display according to claim 1, the aforementioned display-control means considers program selection display by invention according to claim 2 as the configuration characterized by displaying two or more aforementioned channel logo marks which are different for every program in the aforementioned viewing area, respectively in the orientation which combined a longitudinal direction, the vertical orientation or the aforementioned longitudinal direction, and the vertical orientation.

[0012] The program selection display by invention according to claim 3 In program selection display according to claim 1 or 2 the aforementioned display-control means It has the means which highlights or displays [ cursor ] the specific channel logo mark of the displayed channel logo marks. The channel logo mark with which the aforementioned channel logo mark selection means is above-highlighted or cursor displayed is moved in a longitudinal direction or the vertical orientation. It considers as the configuration characterized by specifying the channel logo mark by which the highlight or the cursor display is carried out now, and choosing the program corresponding to the channel logo mark by which specification was carried out [ aforementioned ].

[0013] In program selection display according to claim 1 or 2, the aforementioned channel logo mark selection means considers program selection display by invention according to claim 4 as the configuration characterized by being selectable in a program by one operation.

[0014] The program selection display by invention according to claim 5 A program receiving history storage means to memorize a past program receiving history in program selection display according to claim 3 or 4, With the viewing-and-listening frequency of each program based on the program receiving history memorized by a means to display the channel logo mark of a program corresponding to the program receiving history memorized by the aforementioned program receiving history storage means in the aforementioned viewing area, and the aforementioned program receiving history storage means It considers as the configuration characterized by having a means to change the display position of each aforementioned channel logo mark.

[0015] The program selection display by invention according to claim 6 A desired program is chosen from the promotion channel displays by the aforementioned electronic program guide data constituted by the multi-screen which divided one screen into two or more child screens, and has arranged two or more program picture images on each aforementioned child screen in program selection display according to claim 5. It is characterized by registering the default channel logo mark displayed in the aforementioned viewing area by setting the channel logo

mark corresponding to the program as the position in the aforementioned viewing area.

[0016] In program selection display according to claim 5, out of two or more program information displays based on the data of the aforementioned electronic program guide, the program selection display by invention according to claim 7 chooses a desired program, and is characterized by registering the default channel logo mark displayed in the aforementioned viewing area by setting the logo mark of the channel corresponding to the program as the position in the aforementioned viewing area.

[0017] The program selection display by invention according to claim 8 prepares two or more registration menus of a channel logo mark classified according to the genre of a program, the charged program, etc. in program selection display according to claim 5, and it is characterized by registering the default channel logo mark displayed in the aforementioned viewing area by setting up a desired registration menu out of this registration menu.

[0018] The program selection method of presentation by invention according to claim 9 The channel identification information for every aforementioned program contained in the data of a program, the electronic program guide data which offer the various informations for every aforementioned program, and the aforementioned electronic program guide data is received. While the viewing area which displays the channel selection screen for performing channel selection to the position on a screen is secured Two or more channel logo marks which were memorized by the channel logo mark obtained from electronic program guide data for every aforementioned program or the predetermined storage means beforehand, and were read based on the aforementioned channel identification information are displayed in the aforementioned viewing area. By specifying the channel logo mark of the request displayed on this viewing area, it is characterized by displaying the program corresponding to the aforementioned channel logo mark on an output list as a video signal.

[0019] It is characterized by the program selection method of presentation by invention according to claim 10 displaying further the pay-per-view and the genre which are a complement information on the program equivalent to the selected channel logo mark, a channel number, a program name, a program start finish time, etc., when either of the aforementioned channel logo marks displayed in the aforementioned viewing area is chosen in the program selection method of presentation according to claim 9. [ two or more ]

[0020] According to program selection display according to claim 1 to 10 or the program selection method of presentation, the history about the program received in the past is memorized, and the channel logo mark for choosing a program is displayed corresponding to this history. By choosing it, a desired program can be easily chosen from quick and the program which a user comparatively often watches certainly.

[0021]

[Embodiments of the Invention] Hereafter, the gestalt of operation of this invention is explained with reference to a drawing. Drawing 1 is a block diagram showing the gestalt of operation of the program selection display of this invention. Drawing 2 is a general-view view having shown the example equipped with the program selection display of this invention of the tele \*\*\*\*\* receiving set structure of a system.

[0022] as shown in drawing 2 , the program selection display of this invention is built in the TV receiving set 4 -- having -- the TV receiving set 4 -- the antenna for terrestrial broadcasting 1, the parabolic antenna for BS broadcast 2, and the rose for CS digital broadcasting -- a bora -- an antenna 3 is connected, respectively Moreover, the TV receiving set 4 receives the command by the infrared (IR:Infrared) signal outputted from the photogenesis section of this remote control 5 in the remote control light-receiving section 51 by pushing the operation button of remote control 5.

[0023] Now, in drawing 1 , it is received by the parabolic antenna for CS digital broadcasting 3, and 1stIF signal outputted from LNB3a is inputted into the digital tuner 11, and I-Q signal restores to it. I-Q signal outputted from the digital tuner 11 is inputted into QPSK recovery circuit 12, and QPSK recovery is carried out. The data outputted from QPSK recovery circuit 12 are inputted into the error correction circuit 13, and a data list substitute (day interleave), error correction, and various kinds of data processing are performed, and they are supplied to the desk rumble equipment 14 as data of MPEG 2 transport packet format in the error correction circuit 13.

[0024] On the other hand, demultiplexing &CPU (Central Processor Unit)15 It was transmitted through the satellite and received by the aforementioned parabolic antenna for CS digital broadcasting 3. A key required in order to decode the enciphered signal (data) is stored with a decode program. It is constituted by CPU, ROM, RAM, etc. and security IC card 23 to the aforementioned CR interface 22 connected with the CR interface 22 (insertion) is minded. The key for performing decode processing for the signal (data) by which encryption was carried out [ aforementioned ] is read.

[0025] Demultiplexing &CPU15 supplies the key for performing decryption processing read from this security IC card 23 to the desk rumble equipment 14. Thereby, the desk rumble equipment 14 decodes the enciphered signal (data), and supplies it to demultiplexing &CPU15. In addition, aforementioned demultiplexing &CPU15 controls various equipment, circuits, etc. while it performs various kinds of processings according to the program memorized by the flash memory 28.

[0026] Demultiplexing &CPU15 inputs the transport data which were outputted from the desk rumble equipment 14 and by which desk rumble processing was carried out, and once memorizes this in the data buffer memory 21. and this is read suitably, separation processing



of the stream of each picture / voice is carried out, the stream of a picture is transmitted to MPEG video decoder 16, and an audio stream is transmitted to MPEG audio decoder 18

[0027] MPEG video decoder 16 makes DRAM16a memorize the stream of the inputted picture suitably, and performs decoding of the video signal compressed by MPEG method. The decoded video signal is supplied to the NTSC encoder 17, is changed into the luminance-signal (Y) chroma signal (C) and composite signal (V) of an NTSC color TV system, and is outputted to the AV-SW (audio video and change) circuit 35.

[0028] MPEG audio decoder 18 makes DRAM18a memorize the stream of the inputted voice suitably, and performs decoding of the audio signal compressed by MPEG method. The decoded audio signal is changed into an analog signal in D/A converter 19, and is outputted to the AV-SW (audio video and change) circuit 35.

[0029] Moreover, in addition to the video data of the inputted data of MPEG 2 transport packet format, and audio data, demultiplexing & CPU15 incorporates the aforementioned EPG data etc., and they are supplied to EPG area 21a of the data buffer memory 21, and it memorizes them. EPG information includes the informations (for example, the channel of a program, broadcasting hours, a program name, a genre, etc.) about the program of each broadcast channel of an hours [ some dozens of ] after [ the present time ]. Since this EPG information is transmitted frequently, the newest EPG information is always held at EPG area 21a.

[0030] The data (for example, the receiving history for several weeks of a password or the digital tuner 11, power setting data, such as data of a channel number (henceforth, last channel), a liking channel, a genre, etc. which had received just before [ off ], antenna setting data, etc.) which want to hold after power off are suitably memorized by EEPROM (Electrically Erasable Programmable Read Only Memory)26.

[0031] Furthermore, by control of demultiplexing & CPU15, the aforementioned MPEG video decoder 16 generates predetermined OSD (On screen Display) data, writes them in DRAM16a, and reading it is started further and it is outputted. Thereby, a predetermined character, a graphic, etc. are suitably displayed on CPT (Color Picture Tube)46.

[0032] By the way, as the aforementioned OSD data, when displaying the alphabetic information for example, in the aforementioned EPG data etc., the alphabetic data memorized by EPG area 21a by which EPG data storage was carried out is memorized in the status that it was compressed. For this reason, demultiplexing & CPU15 performs processing which returns this alphabetic data using the compressed code conversion dictionary memorized by font ROM27.

[0033] Moreover, the correspondence table (address translation table) of character code and the store position of the bit map data of a font is memorized by aforementioned font ROM27,

and demultiplexing &CPU15 can read the bit map data corresponding to predetermined character code to it by referring to this translation table. In addition, these bit map data itself are memorized by the predetermined address.

[0034] Furthermore, various kinds of LOGO data and LOGO IDs (Logo Information Data) for displaying a LOGO (Logo) on font ROM27 are memorized, and the address translation table for calling the LOGO data (bit map data) corresponding to the aforementioned LOGO ID is memorized. Thereby, by specifying this LOGO ID, demultiplexing &CPU15 can read the LOGO data memorized by the address corresponding to the ID, and can display them on a screen.

[0035] Moreover, generally, although a channel LOGO etc. is transmitted from a transmitting side through a satellite, when not transmitted, it can substitute specifying predetermined LOGO ID for the bit map data corresponding to the aforementioned ID read from font ROM27 as the aforementioned channel LOGO.

[0036] Furthermore, demultiplexing &CPU15 can perform OSD processing apart from OSD processing by MPEG video decoder 16 by controlling OSD processing circuit 29. That is, OSD screens, such as a channel logo mark, can be displayed apart from a receiving picture, EPG, or a multi-screen promotion channel.

[0037] Moreover, demultiplexing &CPU15 performs sending of the pay-per-view purchase history information on the customer pin center, large by designation of security IC card 23, the pin center, large access performed by a user operating it through the telephone line by controlling a telephone MODEM24.

[0038] 1st outputted from LNB2a of the parabolic antenna for BS broadcast 2 on the other hand An IF signal is supplied to BS second converter module 50, FM detection is carried out within BS second converter module 50, a picture/voice gets over, respectively and it is outputted to the AV-SW circuit 35 as a composite signal (V) and an audio signal.

[0039] Moreover, RF signal received by the antenna for terrestrial broadcasting 1 is supplied to U / V distributor 30 formed as an object for a ground wave double reception, and is further supplied to the parent tuner 31 and the child tuner 33. IF / \*\*\*\* (voice multi-processing) circuits 32 and 34 are supplied, respectively, it gets over, respectively, and the IF signal chosen as the channel of hope by the aforementioned parent tuner 31 and the child tuner 33, respectively is outputted to the AV-SW circuit 35 as a composite signal (V) and an audio signal.

[0040] In the AV-SW circuit 35, selection of the picture/sound signal to which it received and restored in the receiving antenna of each aforementioned broadcast wave, and the picture/sound signal of an external input is performed. The control according to the aforementioned program is performed through a bus by main CPU52 which performs various kinds of processings by the program the selection control of a signal is remembered to be.

[0041] The sound signal chosen by the AV-SW circuit 35 is supplied to the audio processor 47, is supplied to the back audio amplifier 48 to which tone-quality processing was performed, and is outputted from a loudspeaker 49.

[0042] The color recovery circuits 38 and 39 are supplied again through [ after having supplied two Y in which the video signal chosen by the AV-SW circuit 35 was formed for two screen display / C COM VCFs 36 and 37, respectively and dissociating Y/C ] the AV-SW circuit 35, respectively, signal processing is performed, respectively, and SW (change circuit) 40 and 41 is supplied as each [ of Y, I, and Q ] video signal.

[0043] In SW (change circuit) 40 and 41, selection of the video signal (Y, I, Q) supplied from the aforementioned color recovery circuits 38 and 39 and the video signal (Y, I, Q) supplied through the format-conversion circuit 20 from MPEG video decoder 16 is performed. The selection control of a video signal is performed by main CPU52 through a bus. The video signal chosen by SW (change circuit) 40 and 41 is supplied to the level compression circuit 42 and the two screen processing circuit 43, respectively.

[0044] In the level compression circuit 42, wide aspect transform processing (the time of a normal mode the time of 2 screen display 3 / 4 compression processing, left screen 1 / 2 compression processing) is performed. It is superimposed on the left screen processed in the aforementioned level compression circuit 42 at the time of 2 screen display, and the right screen by which 1 / 2 compression processing was carried out in 2 screen processing circuit 43 by SW44, and it is supplied to the RGB processor 45 as a screen of one sheet. In the RGB processor 45, the output (video signal) of the above SW44 is overlapped on OSD signal from CS digital OSD processing circuit 29 controlled by demultiplexing &CPU15, and OSD signal from OSD processing circuit 54 controlled by main CPU52, and they are outputted to CPT46.

[0045] Main CPU52 performs various kinds of processings by the program memorized as above-mentioned. For example, demultiplexing &CPU15 is controlled through a channel-selection control of the aforementioned BS second converter module 50, the parent tuner 31, or the child tuner 33, and a bus line, and a reception, and various processings and controls of CS digital signal are performed. Moreover, SW 40, 41, and 44, the level compression circuit 42, 2 screen processing circuit 43, the RGB processor 45, etc. are controlled, and screen-display controls (two screen display, normal mode, etc.) etc. are performed.

[0046] Drawing 3 is drawing showing the example of a configuration of the button switch 61 of remote control 5. If remote control 5 is operated, an infrared signal will be discharged from the remote control photogenesis section 60, this infrared signal will be received in the remote control light-receiving section 51 of the TV receiving set 4, and a light-receiving result (signal) will be transmitted to main CPU52. That is, predetermined designation can be given to main

CPU52 by operating remote control 5.

[0047] If all subsequent button grabbing turns into the operation (CS mode) about CS and the CS button 62 is again operated by operating the CS button 62 on the button switch 61 (depression), CS mode will cancel the aforementioned remote control 5.

[0048] In the aforementioned CS mode, the broadcast channel registered into the number currently displayed can be direct tuned in by carrying out the depression of the channel (direct) button 63 with which the number of 1-12 is displayed (printing). It can be risen or downed and the channel (rise/down) button 64 can tune in the registered broadcast channel. A menu button 65 is operated when displaying a menu screen.

[0049] The cursor button 66 operates the selection (highlighting) position of the channel logo mark displayed for example, on the screen in any one orientation among the four orientation of the orientation of four directions (move). The decision button 67 is operated when determining items, such as a channel logo mark chosen with the aforementioned cursor button 66. The display button 68 is operated when displaying informations, such as a receiving channel, and a video input, the voice mode. As mentioned above, remote control 5 is used for a display of the information on a channel LOGO channel selection and a receiving channel at the time of CS mode. In addition, although an explanation is omitted, in addition to this, various kinds of operation button switches are prepared in the button switch 61.

[0050] Next, processing (operation) until it receives the program of a channel for which CS digital broadcasting wishes from the status that the program of a usual ground wave is received and it makes it display about an operation of the program selection display of this invention is explained to an example. In addition, it explains as what performs operation using the aforementioned remote control 5.

[0051] A user starts a series of operation first by operating the CS button 62 of the remote control 5 of drawing 3 (depression). If this CS button 62 is operated, while the screen of the TV receiving set 4 of the status that the program of a usual ground wave is received turns into the receiving screen of CS channel which is shown in drawing 4, all button grabbing in the subsequent remote control 5 will turn into the operation (CS mode) about CS. In addition, drawing 4 is drawing showing an example of the display screen of the TV receiving set 4 after pushing the CS button 62 of remote control 5.

[0052] If the CS button 62 of remote control 5 is operated (depression), CPU which is not illustrated in remote control 5 will detect that the button switch was operated, and the infrared signal corresponding to the button switch operated from the remote control photogenesis section 60 will be outputted. Main CPU52 of the TV receiving set 4 receives this infrared signal through the remote control light-receiving section 51, and judges whether which button of remote control 5 was operated from the inputted signal.

[0053] Main CPU52 which detected that the CS button 62 of remote control 5 was operated as a result of a judgment Control demultiplexing &CPU15 and the data of the last channel of CS memorized by EEPROM26 are read. While receiving \*\*\*\* of CS digital broadcasting including the digital tuner 11, QPSK recovery circuit 12, and MPEG video decoder 16 is controlled \*\*\*\*s, such as the level compression circuit 42, 2 screen processing circuit 43, and the RGB processor 45, are controlled, and a screen which is shown in the aforementioned view 4 is displayed.

[0054] As shown in drawing 4, in the gestalt of this operation, the operation pallet 75 of the channel LOGO channel selection which is equivalent to 12 channels (channel position) of a ground wave on the right screen of the TV receiving set 4 and which displays the logo mark (channel logo mark 76) of the channel comparatively often seen with the button icon 83 shown by the number 12 from a number 1 is displayed. At this time, highlighting of that by which the last channel was carried out among the 12 buttons icon 83 and the channel logo mark 76 is carried out as cursor 73.

[0055] The program (receiving program 72) equivalent to the number of the channel (channel logo mark 76 by which highlighting was carried out as cursor 73 of the aforementioned right screen) by which the last channel was carried out is received and displayed on a left screen. There is PPV display 71 whose program chosen as left-hand side shows whether it is a charged program, and when it is a charged program, highlighting of the "PPV" is carried out to the screen upper part. It can view and listen continuously by operating the decision button 67 of remote control 5 to watch a charged broadcast as it is.

[0056] Moreover, the received program informations (the genre display 77, the channel number 74, the program name 80, the program start time 78, program finish time 79, etc.) are displayed on the right-hand side of PPV display of the screen upper part, and the lower part of a screen.

[0057] Next, if the number button corresponding to the logo mark of the channel to wish is operated with the channel (direct) button 63 of remote control 5 Main CPU52 moves the cursor 73 by which highlighting was carried out previously to the button icon 83 and the channel logo mark 76 which were chosen by remote control 5. Where highlighting is carried out, demultiplexing &CPU15 can be controlled, and the selected program and selected program information on a channel can be displayed by operating the receiving circuit of the aforementioned CS digital broadcasting.

[0058] By moreover, the thing for which rise/down is operated with the channel (rise/down) button 64 of remote control 5 Main CPU52 moves the cursor 73 by which highlighting was carried out previously in the orientation corresponding to the operation. Where highlighting of the selected button icon 83 and the selected channel logo mark 76 is carried out, demultiplexing &CPU15 can be controlled, and the selected program and selected program

information on a channel can be displayed by operating the receiving circuit of CS digital broadcasting.

[0059] Similarly, by operating the orientation of four directions with the cursor button 66 of remote control 5, main CPU52 moves the cursor 73 by which highlighting was carried out previously in the orientation (the orientation of cursor) corresponding to the operation, and carries out highlighting of the selected button icon 83 and the selected channel logo mark 76. And in this status, if the decision button 67 of remote control 5 is operated, main CPU52 can control demultiplexing & CPU15, and the selected program and selected program information on a channel can be displayed by operating the receiving circuit of CS digital broadcasting. In addition, where highlighting is carried out, when predetermined time operation of the decision button 67 of remote control 5 is not carried out after a move of cursor 73, cursor 73 returns to a highlighting position before moving.

[0060] By the way, when such a viewing-and-listening operation is performed, main CPU52 makes EEPROM26 memorize the receiving history of the channel which controlled demultiplexing & CPU15 and was received. In addition, the viewing-and-listening time of the addition which viewed and listened to the receiving channel to which it viewed and listened among several weeks, and its receiving channel on the memorized receiving history list is memorized. Moreover, in case the receiving history of the channel which carried out [ aforementioned ] the reception is memorized by EEPROM26, the channel which viewed and listened only to slight time, such as the less than appearance which does not become indefinite [ whether it is that the user is viewing and listening to a program truly ], for example, 10 etc. minutes etc., is counted. That is, it records on EEPROM26, using as a receiving history only the receiving channel to which continued more than the predetermined time set up beforehand, and it viewed and listened.

[0061] The array of the channel logo mark displayed on the operation pallet 75 of the aforementioned channel LOGO channel selection will be automatically rearranged into the order with much viewing-and-listening time of the addition of a receiving channel, if it passes over the predetermined term set up beforehand for one etc. month etc. Since the viewing-and-listening time of the addition which viewed and listened to a receiving channel and its receiving channel is recorded on the receiving history list of aforementioned EEPROMs26 even if it is the case where it tunes in by which the technique, although the technique of a channel selection of a program can be carried out by various technique besides selection of a channel LOGO, the channel to which it comparatively often views and listens will always be displayed as a channel logo mark 76 on the operation pallet 75 of a channel LOGO channel selection.

[0062] Next, the technique of registration of the beginning by the user of the channel logo

mark 76 displayed on the operation pallet 75 of a channel LOGO channel selection is explained. Change (channel LOGO setup) of the channel logo mark 76 preset by beforehand [ of the operation pallet 75 of a channel LOGO channel selection ] becomes possible by operating the menu button 65, the cursor button 66, and the decision button 67 of remote control 5.

[0063] That is, operation of the menu button 65 of remote control 5 displays a menu screen which is shown in drawing 5 , for example. the vertical button of the cursor button 66 -- "various setup" -- choosing (highlighting being carried out) -- if it becomes a screen which is shown in drawing 6 and the right button of the cursor button 66 is operated (selection), it will become the various setting screens which are shown in drawing 7 . If "a television channel-selection setup" is chosen with the vertical button of the cursor button 66 (carrying out highlighting) and a right button is operated (selection), it will become a television channel-selection setting screen which is shown in drawing 8 . Furthermore, if "a liking channel setup" is chosen with the vertical button of the cursor button 66 (carrying out highlighting) and a right button is operated (selection), it will become the liking channel setting screen [ like ] shown in drawing 9 .

[0064] In addition, drawing 5 is drawing having shown an example of the menu screen of the program selection display of this invention, drawing 6 is drawing having shown an example of various setup of the menu screen of aforementioned view 5 , drawing 7 is drawing having shown an example of the various setting screens of aforementioned view 6 , drawing 8 is drawing having shown an example of the television channel-selection setting screen of aforementioned view 7 , and drawing 9 is drawing having shown an example of the liking channel setting screen of aforementioned view 8 .

[0065] In the liking channel setting screen shown in this drawing 9 , if it chooses "it chooses on a multi-screen" with the vertical button of the cursor button 66 (carrying out highlighting) and the decision button 67 of remote control 5 is operated, the setting screen of the channel logo mark by the multi-screen which is shown in drawing 10 will be displayed. In the multi-screen displayed on the screen left-hand side of the TV receiving set 4, the program of 16 channels currently broadcast then by 16 child screens displays (introduction). Drawing 10 is drawing having shown an example of a setup by the multi-screen of aforementioned view 9 .

[0066] By the default, highlighting of the button icon 83 and the channel logo mark 76 which are shown by the number 1 displayed on the screen right-hand side of the TV receiving set 4, for example is carried out. If the cursor button 66 of remote control 5 is operated in the orientation of four directions at this time, the cursor 82 which shows one child screen in a multi-screen will move, and the information, i.e., the channel logo mark 76 and the channel number 74, and the program name 80 of the child screen shown with this cursor 82 will be

displayed on the upper part of a screen.

[0067] The cursor button 66 of the aforementioned remote control 5 is operated in the orientation of four directions, cursor 82 is moved to the aforementioned child screen's and \*\* which wish to register, and the channel logo mark 76 corresponding to the child screen (program) which carried out [ aforementioned ] specification is registered into the place of the button icon 83 shown by the number 1 by operating the decision button 67 (specification).

[0068] If the button icon of a number 1 is registered, highlighting of the button icon shown by the number 2 below is carried out, and the channel logo mark 76 corresponding to the child (it specified with cursor 82) screen (program) to wish to have can be registered one after another by operating the cursor button 66 and the decision button 67 of remote control 5. If registration finishes and the menu button 65 of remote control 5 is operated, it will return to a receiving screen.

[0069] On the other hand, if it chooses "it chooses in a program guide" with the vertical button of the cursor button 66 in the liking channel setting screen shown in the aforementioned view 9 (carrying out highlighting) and the decision button 67 of remote control 5 is operated, the setting screen of the channel logo mark by the program guide (program information) which is shown in drawing 11 will be displayed. Drawing 11 is drawing having shown an example of a setup by the program guide of aforementioned view 9 .

[0070] On the default screen, highlighting of the button icon 83 and the channel logo mark 76 which are shown by the number 1 displayed on the screen right-hand side of the TV receiving set 4, for example is carried out. At this time, by operating the cursor button 66 of remote control 5 in the orientation of four directions, the cursor 84 which shows one program in the program guide (program information) displayed on the screen left-hand side of the TV receiving set 4 moves, and the channel logo mark 76, the channel number 74, and the program name 80 of the program shown with the cursor 84 are displayed on the upper part of a screen (not shown).

[0071] The cursor button 66 of the aforementioned remote control 5 is operated in the vertical orientation, cursor 84 is moved to the place of the program which wishes to register, and the channel logo mark 76 specified to be the place of the button icon 83 shown by the number 1 is registered by operating the decision button 67 (specification).

[0072] If the button icon of a number 1 is registered, highlighting of the button icon 83 shown by the number 2 is carried out, and the channel logo mark 76 corresponding to the program (it specified with cursor 84) for which it wishes can be registered one after another by operating the cursor button 66 and the decision button 67 of remote control 5. If registration finishes and the menu button 65 of remote control 5 is operated, it will return to a receiving screen.

[0073] Moreover, in the liking channel setting screen shown in the aforementioned view 9 , if



it chooses "it chooses with a liking menu" with the vertical button of the cursor button 66 (carrying out highlighting) and the decision button 67 of remote control 5 is operated, the setting screen of the channel logo mark by the liking menu [ like ] shown in drawing 12 will be displayed. It is drawing having shown an example of a setup by the liking menu of drawing 12 aforementioned view 9 .

[0074] Highlighting of the button icon 83 which shows the default setting screen of the channel logo mark by the liking menu by the number 12 from a number 1 with the channel logo mark 76 of 12 set up in "BASIC 1" in which the cursor display of the beginning of an upper case was carried out is carried out. When this setup is sufficient, the decision button 67 of remote control 5 is operated and registered.

[0075] When the above-mentioned setup is not desirable, the cursor 85 which shows one menu in a liking menu is moved by operating the cursor button 66 of remote control 5 in the vertical orientation. Since the channel logo mark 76 of 12 set as the menu corresponding to the cursor display is changed and displayed on the channel logo mark 76 currently displayed previously by this, the aforementioned cursor 85 is moved, the channel logo mark 76 displayed on the screen right-hand side of the TV receiving set 4 is seen, the menu (position of cursor 85) to wish to have is chosen, and registration change can be carried out by operating the decision button 67. If registration finishes and the menu button 65 of remote control 5 is operated, it can return to a receiving screen.

[0076] Thus, it is also possible to register a setup of the channel logo mark for a channel selection by the user.

[0077] As mentioned above, although the case where this invention was applied to the tele \*\*\*\*\* receiving set which receives CS digital broadcasting was explained to the example, this invention is applicable about each, such as a television receiving set which receives the program of the many channels in BS digital broadcasting and ground wave digital broadcasting by which the broadcast will be planned from now on, and other related equipments.

[0078] Moreover, since from [ of the channels to which it unrelated comparatively often views and listens with a broadcast media / 1 ] can be chosen from each channels of CS digital broadcasting, BS digital broadcasting, and ground wave digital broadcasting, the program channel selection which does not make it conscious of a broadcast media is possible.

[0079]

[Effect of the Invention] Since the channel logo mark of the program corresponding to [ according to / like / the program selection equipment and the program method of presentation of this invention, memorize a past receiving history, and ] the receiving history described above was displayed, it is enabled to choose the program for which a user wishes

quickly and certainly out of the comparatively often seen broadcast channel.

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